

## SUPPLY CHAIN MANAGEMENT AND LOGISTICS

*Supply Chain Management and Logistics* is the study of the basic concepts included in the field of logistics and supply chain management. Topics covered include: supply chain management, customer service, transportation, purchasing, inventory, and warehouse management and introduces students to the various components of logistics. Topics will include logistics systems, order, demand inventory and warehouse management, and the control systems and automated components of logistical systems. The course also focuses on the terminology of supply chain management including the history, integration into the business plan, partnerships, profits and saving potential, sources of supply and other issues concerning supply chain management and operating environment. This course includes MSSC concepts required to earn the CLA/CLT MSSC certification.

- DOE Code: 5601
- Recommended Grade Level: Grade 11-12
- Recommended Prerequisites: Introduction to Advanced Manufacturing
- Credits: 2-3 credits per semester, maximum of 6 credits
- Counts as a Directed Elective or Elective for the General, Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- This course is aligned with postsecondary courses for Dual Credit
  - Ivy Tech
    - LOGM 127- Introduction to Logistics
  - Vincennes University
    - PRDM 100- Supply Chain Logistics Management
    - PRDM 272-Transportation

### Dual Credit

This course provides the opportunity for dual credit for students who meet postsecondary requirements for earning dual credit and successfully complete the dual credit requirements of this course.

### Application of Content and Multiple Hour Offerings

Intensive laboratory applications are a component of this course and may be either school based or work based or a combination of the two. Work-based learning experiences should be in a closely related industry setting. Instructors shall have a standards-based training plan for students participating in work-based learning experiences. When a course is offered for multiple hours per semester, the amount of laboratory application or work-based learning needs to be increased proportionally.

### Career and Technical Student Organizations (CTSOs)

Career and Technical Student Organizations are considered a powerful instructional tool when integrated into Career and Technical Education programs. They enhance the knowledge and skills students learn in a course by allowing a student to participate in a unique program of career and leadership development. Students should be encouraged to participate in SkillsUSA, the CTSO for this area.

## Content Standards

### Domain – Workplace Competency

**Core Standard 1** Students apply concepts in workplace behavior and competency to specific skill

requirements within the field of logistics.

**Standards**

- SCML-1.1 Allocate the appropriate resources for task completion
- SCML-1.2 Demonstrate effective interpersonal skills
- SCML-1.3 Develop leadership skills
- SCML-1.4 Establish positive relationships with people from diverse backgrounds
- SCML-1.5 Research, analyze, and use data for work assignments
- SCML-1.6 Apply effective critical thinking, decision making, and problem-solving techniques
- SCML-1.7 Select and use appropriate tools and technology
- SCML-1.8 Implement quality assurance measures and safeguards
- SCML-1.9 Read and interpret written materials
- SCML-1.10 Apply written communication skills
- SCML-1.11 Demonstrate effective listening and speaking skills
- SCML-1.12 Perform appropriate mathematical calculations correctly
- SCML-1.13 Exhibit a responsible work ethic
- SCML-1.14 Demonstrate accepted standards for ethical behavior
- SCML-1.15 Apply concepts of a safe workplace

**Domain – Career Development**

**Core Standard 2** Students establish the basis of the skills required for career opportunities in supply chain management and logistics.

**Standards**

- SCML-2.1 Establish a personal career goal and develop objectives for achieving the goal
- SCML-2.2 Evaluate employment and career pathway opportunities related to established career interest(s)
- SCML-2.3 Create a continuing education plan that identifies further education and training options
- SCML-2.4 Prepare for exams leading to certifications recognized by business and industry
- SCML-2.5 Develop skills needed to enter the workforce
- SCML-2.6 Evaluate resources that keep workers current in the career field
- SCML-2.7 Demonstrate skills and attitudes needed for lifelong learning
- SCML-2.8 Apply effective money management strategies

**Domain – Logistics Management**

**Core Standard 3** Students synthesize supply chain management, operations management, and automation to conceptualize a cohesive knowledge base of logistics.

**Standards**

- SCML-3.1 Define logistics
- SCML-3.2 Identify the purposes and the economic importance of logistics in both individual applications and global implications
- SCML-3.3 Describe the role of logistics in modern manufacturing
- SCML-3.4 Discuss the different types of information systems and their use in logistics systems
- SCML-3.5 Distinguish the basic concepts and characteristics of different forms of transportation

- and the influence of transportation on plant and warehouse locations
- SCML-3.6 Explain the central components of a logistics system and their integration
- SCML-3.7 Analyze improvement opportunities for today's manufacturing logistics systems
- SCML-3.8 Describe information technology's contribution to logistics
- SCML-3.9 Describe logistics system controls

### **Domain – Supply Chain Management**

**Core Standard 4** Students apply concepts of supply chain management to prepare supply chain strategies and forecasting.

#### **Standards**

- SCML-4.1 Discuss global implications of supply chain management and logistics systems with respect to current technology
- SCML-4.2 Assess the effect of distribution in customer service relationships
- SCML-4.3 Define supply chain management and understand issues involved in creating and maintaining supply chain strategies
- SCML-4.4 Apply techniques and methods for effective inventory management from a lean manufacturing perspective
- SCML-4.5 Define the supply chain management concept
- SCML-4.6 Define demand management, order management and customer service
- SCML-4.7 Discuss distribution, warehousing and inventory management
- SCML-4.8 Identify common procurement and purchasing procedures

### **Domain – Operations Management**

**Core Standard 5** Students integrate operational systems, including transportation, material handling, warehouse, automation, information and logistics systems to design and simulate warehouse operations.

#### **Standards**

- SCML-5.1 Distinguish the basic concepts and characteristics of different forms of transportation and the influence of transportation on plant and warehouse locations
- SCML-5.2 Define logistics
- SCML-5.3 Apply techniques and methods for effective inventory management from a lean manufacturing perspective
- SCML-5.4 Design a warehouse operation layout considering safety, packaging, material handling, automation, information systems and lean manufacturing concepts
- SCML-5.5 Discuss global implications of supply chain management and logistics systems with respect to current technology
- SCML-5.6 Analyze improvement opportunities for today's manufacturing logistics systems
- SCML-5.8 Review transportation and transportation management concepts
- SCML-5.9 Examine the main regulations affecting the transportation industry
- SCML-5.10 Analyze the service components of freight demand.
- SCML-5.11 List the common goods and commodities carried by each of the five main modes of transportation.
- SCML-5.12 Explain the cost structures of the five main modes of transportation
- SCML-5.13 Examine the use of Intermodal transportation in supply chain management

- SCML-5.14 Explain the special considerations and industry norms of global transportation.
- SCML-5.15 Examine the factors affecting pricing decisions
- SCML-5.16 Calculate various costing values
- SCML-5.17 List the key elements on a bill of lading
- SCML 5.18 Examine how information technology is used within the transportation industry.

### **Domain – Automation**

**Core Standard 6** Students connect automation and manufacturing integration within logistics to resolve problems and improve systems controls.

#### **Standards**

- SCML-6.1 Design a warehouse operation layout considering safety, material handling, automation, information systems and lean manufacturing concepts
- SCML-6.2 Explain the central components of a logistics system and their integration
- SCML-6.3 Describe information technology's contribution to logistics

## **Process Standards**

### **Common Core Literacy Standards for Technical Subjects**

#### **Reading Standards for Literacy in Technical Subjects 11-12**

The standards below begin at grade 11 and define what students should understand and be able to do by the end of grade 12. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations – the former providing broad standards, the latter providing additional specificity.

#### **Key Ideas and Details**

- 11-12.RT.1 Cite specific textual evidence to support analysis of technical texts, attending to important distinctions the author makes and to any gaps or inconsistencies in the account.
- 11-12.RT.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
- 11-12.RT.3 Follow precisely a complex multistep procedure when performing technical tasks; analyze the specific results based on explanations in the text.

#### **Craft and Structure**

- 11-12.RT.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific context relevant to *grades 11-12 texts and topics*.
- 11-12.RT.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
- 11-12.RT.6 Analyze the author's purpose in providing an explanation, describing a procedure, or discussing an experiment in a text, identifying important issues that remain unresolved.

#### **Integration of Knowledge and Idea**

- 11-12.RT.7 Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., quantitative data, video, multimedia) in order to address a question

or solve a problem.

- 11-12.RT.8 Evaluate the hypotheses, data, analysis, and conclusions in a technical subject, verifying the data when possible and corroborating or challenging conclusions with other sources of information.
- 11-12.RT.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

#### **Range of Reading and Level of Text Complexity**

- 11-12.RT.10 By the end of grade 12, read and comprehend technical texts in the grades 11-CCR text complexity band independently and proficiently.

#### **Writing Standards for Literacy in Technical Subjects 11-12**

The standards below begin at grade 11 and define what students should understand and be able to do by the end of grade 12. The CCR anchor standards and high school standards in literacy work in tandem to define college and career readiness expectations – the former providing broad standards, the latter providing additional specificity.

#### **Text Types and Purposes**

- 11-12.WT.1 Write arguments focused on *discipline-specific content*.
- 11-12.WT.2 Write informative/explanatory texts, including technical processes.
- 11-12.WT.3 Students will not write narratives in technical subjects. *Note: Students' narrative skills continue to grow in these grades. The Standards require that students be able to incorporate narrative elements effectively into arguments and informative/explanatory texts. In technical, students must be able to write precise enough descriptions of the step-by-step procedures they use in their technical work that others can replicate them and (possibly) reach the same results.*

#### **Production and Distribution of Writing**

- 11-12.WT.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- 11-12.WT.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
- 11-12.WT.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

#### **Research to Build and Present Knowledge**

- 11-12.WT.7 Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.
- 11-12.WT.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the usefulness of each source in answering the research question; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and following a standard format for citation
- 11-12.WT.9 Draw evidence from informational texts to support analysis, reflection, and research.

**Range of Writing**

11-12.WT.10 Write routinely over extended time frames (time for reflection and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.